LAW OFFICEOF EDWARD ETKIN, ESQ. PC
228 WEST END AVENUE, BROOKLYN, NEW YORK 11235

TELEFAX TRANSMITTAL **October 31, 2005**

To: **Examiner Lisa L. Herring / John Hoffman** Fax#: **(571) 273-8300**
From: **Edward Etkin, Esq.** Fax#: **(718) 504-4086**

Confidentiality Statement

2 Pages Follow This Cover Sheet
If all pages are not received or you otherwise experience transmission difficulties
Please call (718) 648-2122

RE-TRANSMISSION OF PART OF FORMAL RESPONSE FOR:

In re Application of: Jonathan Singer et al.

Serial No.: 10/099,623

Filed: March 14, 2002, Priority Date: March 14, 2001

For: **APPARATUS AND METHOD OF FABRICATING CHIRAL FIBER GRATINGS**

Dear Examiner Herring / Hoffman:

The Office communication mailed on September 29, 2005 (Paper No. 200509) in the above-identified case, noted that pages 4 and 13 of the response which was faxed in response to were missing, likely due to problems in fax transmission.

In response to the office communication, enclosed please find a re-transmission of pages 4 and 13 of the previously filed response. No Extension of Time is necessary because October 29, 2005, the one month deadline for response to the communication fell on a Saturday.

Please do not hesitate to contact the applicants undersigned attorney at (718) 648-2122 if there are any issues or questions.

Best Regards

Edward Etkin, Esq.
Reg. No. 37,824

On page 4 of the specification, please replace the paragraph that starts with "Another novel technique for fabricating chiral fibers having fiber grating properties ..." with the following amended paragraph:

Another novel technique for fabricating chiral fibers having fiber grating properties, is disclosed in the commonly-assigned co-pending U.S. patent application, S/N: 09/925,590, entitled "Apparatus and Method for Manufacturing Periodic Grating Optical Fibers", which is hereby incorporated by reference in its entirety. This approach (hereinafter referred to as "First Twisting Technique" or "FTT") involved twisting a heated optical preform (comprising either a single fiber or multiple adjacent fibers) to form a chiral structure having chiral fiber Bragg grating properties. While the FTT approach has many advantages over previously known approaches, there are a number of possible areas of improvement, for example in strengthening the chiral fiber after twisting, in restricting lateral vibration of the twisting fiber, and in heating the portion of the fiber being twisted. The FTT approach also did not provide for monitoring the optical properties of the fiber during fabrication and thus could not make real-time adjustments to the fabrication process. Also the FTT required specially prepared fiber preforms – for example fibers with pre-configured core cross-section shapes and in some cases specific relationships between refractive indices of the preform fiber core and cladding. Thus, in order to fabricate a chiral fiber having a desired refractive index profile, a preform fiber with specific characteristics would need to be prepared prior to fabrication of the chiral fiber. Finally, the [[FTS]] FTT technique relied on heating the fiber while it is being twisted – it did not address fabrication of chiral fibers having the properties of fiber gratings without heating or twisting the fiber.

The 35 U.S.C. 103(a) Rejection of Claims 54 and 55 over Epworth et al. (GB2188719).

The Examiner rejected claims 54 and 55 under 35 U.S.C. 103(a) as being allegedly unpatentable over Epworth, citing that Epworth allegedly teaches formation of a chiral structure by application of the helical and/or double helical ribs, but does not teach a specific relationship between the pitch and period of the resulting structure. The Examiner further stated that such a configuration would have been obvious in light of Epworth's statements on page 3, lines 5-11 where Epworth discloses application of a an element or two elements for a "double helix".

The Examiner's arguments are respectfully traversed in light of amendments to claims 54 and 55 and the following remarks. The essence of applicants' invention is a novel technique for fabricating various types of chiral fiber structures with either a helical or a double helical chiral refractive index modulation along a structure's longitudinal axis. Unlike applicants' inventive chiral fiber structure fabrication methodology, Epworth proposes a different way of achieving a conventional standard periodic fiber grating structure of the type described in the background of applicants invention – by inducing a conventional period refractive index variation along the fiber through the use of periodic fiber deformation (through pressure via pinching, etc.). Such an approach produces a conventional fiber grating, but cannot produce a chiral fiber grating (which is the goal of applicants' invention).

The "look" of Epworth fiber with the "helical" grating structures or "ribs" (Epworth FIGs. 1, 2a, 2c, 2d, and 3a) along with the usage of terms "helix" and "double helix" by Epworth throughout the specification, may appear on the surface to suggest similarity to applicants' invention. However, in fact, application of the various methodologies taught by Epworth cannot produce the chiral fiber gratings of applicants' invention. This is due to the